# THE BATTLE AT MIDWAY - MEDICAL INFORMATION

Dear Triathletes,
Recently the International Marathon Medical Directors Association released hydration guidelines for endurance events. Triathletes have extraordinary endurance training and would benefit from following these same guidelines.

## HOW MUCH FLUID SHOULD I DRINK DURING ENDURANCE EVENTS?
## IMMDA's REVISED FLUID RECOMMENDATIONS FOR RUNNERS & WALKERS

Writing committee: Lewis G. Maharam, MD.FACSM (chair), Tamara Hew DPM, Arthur Siegel MD, Marv Adner, MD, Bruce Adams, MD and Pedro Pujol, MD, FACSM
Approved by IMMDA Body, May 6, 2006 Barcelona Spain
As Medical Directors (IMMDA: International Marathon Medical Director's Association) of the world's largest marathons and endurance events, it is our desire to educate and ensure that our participants consume proper fluids and amounts of fluids during endurance events to remain healthy and perform well. Too much or too little may bring about health concerns and/or poor performance. We therefore offer the following guidance for runners and walkers at all levels to follow in their training and competitive events.

What should you drink? The evidence on this is clear. If your event or workout is longer than 30 minutes you should be drinking a sports drink. The added carbohydrate and electrolytes speed absorption of fluids and have the added benefit of energy fuel and electrolytes. There is actually decreased benefit to watering down or diluting sports drinks or alternating sports drinks with water.

How much should you drink? Drinking too much or too little can be of risk to health and performance. Hyponatremia ( low blood salt level due to abnormal fluid retention from overdrinking) and dehydration (due to net fluid losses from under drinking) are conditions easily adverted by understanding your individual body needs. Just as you have a unique face and fingerprint, your body's need for fluid is individual as well. Body weight, gender, climate, sweat rate are just a few variables that individualize your needs. Understanding that it is normal to lose a small amount of bodyweight during a marathon race: bodyweight will re-equilibrate over the next 24 hours through the consumption of sodium and fluids with meals. A weight loss of more than 2% or any weight gain are warning signs that justify immediate medical consultation and indicate that you are drinking improperly.

We offer the following ideas and guidelines for you to consider as you assess your individual fluids:

Try to drink to thirst. This advice seems way too simple to be true; however, physiologically the new scientific evidence says that thirst will actually protect athletes from the hazards of both over and underdrinking by providing real time feedback on internal fluid balance. If you are not thirsty, try to refrain from drinking. Do not feel compelled to drink at every fluid station nor follow the cues of other runners: their fluid needs are probably very different from your own. If you are "over-thinking" and feel you cannot rely on this new way of thinking, experiment in your training with one of these other ways realizing each has it's own cautions as well.

## APPROXIMATION OF FLUID REPLACEMENT *

*The reader should understand that there are individual variations: "one size does not fit all". We endorse thirst as the best scientifically supported method for you to use. These alternate methods may not take into account changes in ambient conditions, running speed and terrain which can all change dynamically which thirst as a method to use does.

Runners and walkers who are interested in the endurance "experience" rather than pursuing a 'personal best' performance, must resist the tendency to over drink. Runners/walkers planning to spend between 4-6 hours or longer on the course are at risk for developing fluid-overload hyponatremia and usually do not need to ingest more than one cup (3-6 oz: 3 oz if you weigh approximately 100 lbs and 6 oz if you weigh approximately 200 lbs) of fluid per mile. Athletes should avoid weight gain during an event

Some participants may find that adjusting their intake to pace or time is easier for them as shown below but remembering thirst is the best method:

Adjust the rate of fluid intake to race pace: slower race pace = slower drinking rate; maximum intake of 500 ml/hr (4-6 oz every 20 min) for runners with greater than 5 hour finishing times (10-11 min/mile pace). Weight monitoring is also important: if you gain weight during your workout or event, you are drinking too much!

For a more highly motivated runner/walker who desires a numeric "range", a fluid calculator can provide an estimate of body fluid losses as a generalised strategy for fluid replacement. Participants concerned about peak performance are advised to understand their individualised fluid needs through use of this fluid calculator but ALWAYS defer to physiologic cues to increase fluid intake (thirst, concentrated dark urine, weight loss) or decrease fluid consumption (dilute or clear urination, bloating, weight gain) while participating. It is also important to recognize that if you use this method in one climate and then travel to a different climate for your event, the humidity will change your sweat rate and therefore your fluid needs.

Fluid calculator: to calculate sweat rate, runners/ walkers should follow these steps:

Weigh nude before the run
Run/walk at race pace for one hour. (One hour is recommended to get a reliable representation of sweat rate expected in a endurance event.)
Track fluid intake during the run or walk; measure in ounces
Record nude weight after the run/walk. Subtract from starting weight. Convert the difference in body weight to ounces.
To determine hourly sweat rate, add to this value the volume of fluid consumed (in Step 3).
To determine how much to drink every 15 minutes, divide the hourly sweat rate by 4. This becomes the guideline for fluid intake every 15 min of a run.
Note the environmental conditions on this day and repeat the measurements on another day when the environmental conditions are different. This will give you an idea of how different conditions affect your sweat rate.
Good luck in your training. Experimenting with your fluids can be a fun exercise. Remember to keep in mind that the consumption of beverages and foods containing sodium or carbohydrate should be guided by the goal to minimize loss of body weight and prevent weight gain.

The International Marathon Medical Directors Association (IMMDA) was formed as the Consulting Medical Committee of the Association of International Marathons (AIMS). AIMS is a global organization of marathons and other road races, formed in May, 1982. The purpose of AIMS is to i) foster and promote marathon running throughout the world, ii) recognize and work with the International Association of Athletics Federations (IAAF) as the sport's world governing body on all matters relating to international marathons, and iii) exchange information, knowledge, and expertise among its member events. AIMS' current roster numbers approximately 150 events which are conducted on all 7 continents and which includes the world's largest and most prestigious marathons.

The purpose of IMMDA is to i) promote and study the health of long distance runners, ii) promote research into the cause and treatment of running injuries, iii) prevent the occurrence of injuries during mass participation runs, iv) offer guidelines for the provision of uniform marathon medical services throughout the world, and v) promote a close working relationship between race and medical directors in achieving the above four goals.